

### REMARKS

The Applicants thank the Examiner for the allowance of claim 24 and for the indication of allowability of claim 14.

As a preliminary matter, the first item in the Office Action concerning the Information Disclosure Statement filed on 8/14/2003 seems to be in error. First, the undersigned did in fact submit a list of references of references. Second, those references have in fact been considered by the Examiner. Attached to this paper is a copy of that form PTO-1449 duly initialed by the Examiner, as downloaded from the new Image File Wrapper function of the USPTO web site. Finally one of the submitted references was used to reject the claims. The remainder of this paper deals with this rejection. Thus, it is respectfully requested that the Examiner acknowledge consideration of the documents submitted with the Information Disclosure Statement filed on 8/14/2003.

This application, as amended herein, contains claims 1-3, 5-11, 13, 14, 16, 17, 22-26, and newly added claims 27-33.

Claims 1-3, 5-11, 13, 16, 17, 22, 23, 25 and 26 were rejected under 35 U.S.C. 102(b) as being anticipated by M. Tomlinson. This rejection is respectfully traversed, as being wrong as a matter of fact and law.

Applicants' invention, as set forth in independent claims 1, 16, 22, 23, 25 and 26, is directed to determining positions of pulses encoded by pulse modulation. As described in the specification, by way of example, and not by way of limitation, 4-PPM (four-slot Pulse Position Modulation) may be used (See specification, page 11, line 8 to page 12, line 15.)

Tomlinson has nothing whatsoever to do with the position of a pulse. Tomlinson deals specifically with transmission via modems using phase-shift-keyed (psk) modulation (See Tomlinson at page 527, right hand column, second paragraph, and page 530 right hand column, under heading 4. A block Diagram of S.A.P. for 4-phase P.S.K. with Differential Encoding).

The modulation used in Tomlinson is phase modulation of a low frequency carrier sent over a telephone line (See Tomlinson at page 527, right hand column, second paragraph). As noted in the attached descriptive material at: <http://whatis.techtarget.com/definition/0,,sid9-gci213937,00.html>, and especially from pages 1,2, 10 and 11 of <http://www2.rad.com/networks/1994/modems/modem.htm> (see in particular pages 10 and 11), a continuous carrier is sent and its phase is changed to represent digital signals. There are no pulses, and thus there is no concern about the position of pulses. It is only the phase that determines what is being sent.

Thus, there is no teaching or suggestion in Tomlinson of determining the position of a pulse, because pulse

position is simply irrelevant to the modulation technique used in Tomlinson.

For the reasons set forth above, it is respectfully submitted that independent claims 1, 16, 22, 23, 25 and 26 are patentably distinguishable from Tomlinson.

It was also previously noted that independent claims 1, 16, 22 and 23 have all been amended to recite that the probability table is an asymmetric probability table when the first signal component has a better quality measure than the second signal component, and the probability table is a symmetric probability table when the first signal component has an equal quality measure to the second signal component.

Applicants' invention, as set forth in independent claims 1, 16, 22 and 23, has the advantage of allowing for efficient operation in either the case of two received signals being of equal quality, or the case of the two received signals being of unequal quality.

In the rejection of claim 1, the Examiner refers to table 2 on page 528 of Tomlinson as being both an asymmetric table and a symmetric table. It is respectfully submitted that this does not make sense. In accordance with claim 1, and as supported by the specification, there are two separate probability tables (see Fig. 17 which is an asymmetric table, and Fig. 18, which is a symmetric table and the specification at page 22, line 18 to page 23, line 5, and in particular, page 23, lines 3-5 and lines 16-

18). The same table may not be both asymmetric and symmetric. Further, there is absolutely no discussion in Tomlinson of an asymmetric probability table being used when the first signal component has a better quality measure than the second signal component, and the probability table being a symmetric probability table when the first signal component has an equal quality measure to the second signal component. In fact tables 1 and 2 of Tomlinson seem to deal with error probabilities without and with diversity, respectively. This has nothing whatsoever to do with signal quality, which is a consideration separate and apart from whether there is diversity.

It is thus respectfully submitted that the rejection of claims 1, 16, 22 and 23 simply is not supported by the reference cited. In fact, while the Examiner should be making an independent determination, it is pointed out that in the European Search Report, a copy of which was submitted with the Information Disclosure Statement filed on August 14, 2003, Tomlinson was cited as category A prior art, that is merely technological background. It is thus respectfully submitted that for all of these additional reasons, the rejection of claims 1, 16, 22 and 23 should be withdrawn.

Newly added claims 27-32 depend from independent claims 1, 16, 22, 23, 25 and 26, respectively and state that the pulse position is pulse position as a function of time. This serves to further emphasize the distinctions from Tomlinson made above, that Tomlinson is directed to phase shift keying of a continuous carrier wave, there are

no pulses transmitted in Tomlinson, and that pulse position is not relevant in Tomlinson. It is thus submitted that claims 27-32 are also directed to patentable subject matter.

Newly added claim 33 depends from claim 1, and states that the probability table is a first probability table when the first signal component has a better quality measure than the second signal component, and the probability table is a second probability table when the first signal component has an equal quality measure to the second signal component. This claim further emphasizes the distinction made with respect to independent claims 1, 16, 22 and 23 that there may be two separate tables. It is thus submitted that claim 33 is also directed to patentable subject matter.

The remaining claims depend from one of the independent claims discussed above. These claims recite further elements which, in combination with the elements of the claims from which they depend, are not shown or suggested in the art of record.

Claim 5 states that the probability table comprises a diagonally asymmetric table, while claim 6 states that in the case where the first component shows a legal symbol, then the second component has no influence on the value which is representative of pulse position. Again, it is respectfully submitted that Tomlinson, does not teach or suggest the invention, as set forth in claims 5 and 6.

In view of the above, and for the various reasons set forth with respect to independent claim 1, it is respectfully submitted that claims 5 and 6 are directed to patentable subject matter. Allowance of claims 5 and 6 is respectfully requested.

If the Examiner can not issue an immediate allowance, it is respectfully requested that he contact the undersigned, at the telephone number set forth below, with a view toward resolving any remaining issues, so that this application may be allowed.

It is believed that no fee is due as a result of the filing of this paper. However, any required fee may be charged to Deposit Account No. 50-0510.

Respectfully submitted,

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8/5/2004  
Date

SERIAL NO.: 09/902,365

FILED: 7/10/2001